Journal of Research on the Lepidoptera 4 (2): 81-102, 1965

1160 W. Orange Grove Ave., Arcadia, California, U.S.A.

DISTRIBUTION AND PATTERN OF VARIATION IN *PHILOTES RITA*

R. H. T. MATTONI

North American Aviation, Downey

PHILOTES RITA HAS USUALLY BEEN regarded as a distant taxon with a relatively restricted range in Southern Arizona (Comstock, 1953; Tilden and Downey, 1955). Mattoni (1954), however, in briefly describing the distribution of *P. rita* included "California everywhere east of Sierras" in the range as well. Ths statement was based on several specimens, genitalically determined from several such localities (see below). Configuration of the male genitalia, principally the valve and aedeagus, has been recognized as the primary characteristic distinguishing *P. rita* from all other members of the genus (Barnes and McDunnough, 1916a; Watson and Comstock, 1920; Mattoni, 1964; and Tilden and Downey, 1955). Tilden and Downey (1955) described as a new species *P. pallescens,* which they clearly recognize as closely related to *P. rita* on the basis of the male genitalia. Because of proportional differences in the shape of the valves and other features of the genitalia, principally the presence of a sclerotized protuberance on the valves, in addition to highly disparate appearance of the alar characters, these authors regarded *P. pallescens* as a distinct species. Tilden (personal communication) indicated, however, that this conclusion was by no means rigorous and was based largely on the lack of data on intermediate populations. Perhaps the most significant biological feature of this species is its flight time, which is virtually always in the late summer from mid-August through September. All recorded observations of foodplant preference shows *P. rita* to be associated with the low woody perennial Fall Blooming *Eriogonums: E. wrightii, E effusum,* and *E. plumatella.*

Further data to be presented in this report show that *P. rita* is, in fact, a widespread species and that *pallescens* is most reasonably regarded as one of several subspecies of which two new subspecies are described herein.

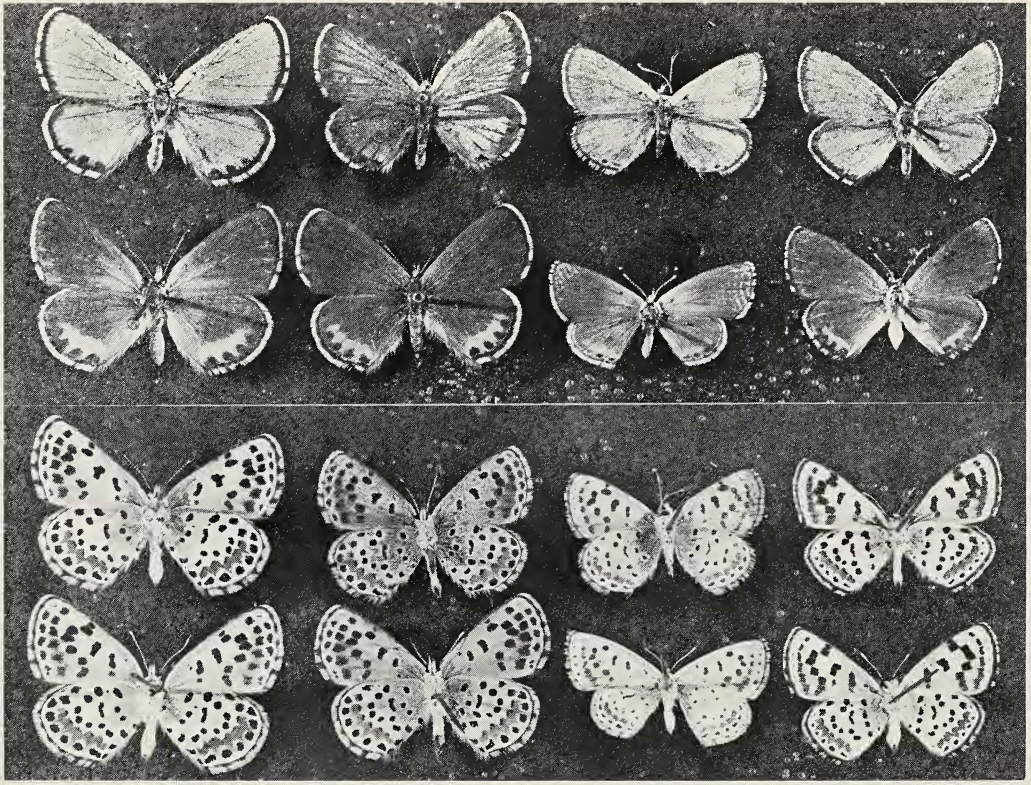

Fig. 1. Representative specimens of *P. rita* subspecies. Each column represents uppersides and undersides of males and females of each. Column 1. *P. rita rita.* Ramsey Canyon, Cochise Co., Arizona, September 1, 1953, Coll. L. Martin. Column 2. *P. rita coloradensis.* Holotype and allotype, data in text. Column 3. *P. rita pallescens.* Paratype, Little Granite Mt. Tooele Co., Utah. Male August 16, 1954 (Coll. Eastin), Female August 20, 1953 (Coll. Cott). Column 4. *P. rita elvirae.* Holotype and allotype. Data in text. All specimens in Los Angeles County Museum collection.

In the following paper wing dimensions are given as length measured from base of CU to terminus at M_2. The nomenclature used incorporates part of the Nabokov terminology (1944) and classical usage.

Philotes rita rita

Barnes & McDunnough 1916. Can. Ent. 48:233.

Characterization and Variation: (fig. 1)

The authors of this species figure the types [(1916b) Plate XI, Figures 3 & 6] and male genitalia [(1917) Plate XVII, Figures 5 & 7.] Specimens are also illustrated in Comstock (1927) Plate 56 Figures 4, 5, and 6, and Holland (1931) Plate LXVI, Figures 39 and 40 (paratypes).

The characters upon which the specific differentiation of this species was based include for the males: creamy white underside, narrow (1 mm) upper side marginal band, and the aurora showing on the upperside secondaries. In both sexes characteristics included large size wingspread (23 mm=11.5 mm length), the very broad and extensive development of the aurora on the underside, and the large and distinct macules. Table 1 includes a study of variation of several characteristics of *rita* and other subspecies.

The specimens from which this table was prepared were all collected at Ramsey Canyon, Arizona and are in the Los Angeles County Museum. The data given include number of species examined, range in forewing spread in males and females, etc. The columns indicate the parameters, and the rows indicate the data obtained for each named form. The most noteworthy features of general appearance include the high frequency of males with an upperside aurora, large size, and clear underside maculation with faint halos.

Genitalia:

The authors of this species based its distinctness on the conformation of the male genitalia. They noted relationship to *P. enoptes*, yet called attention to the greater length of the claspers (valves). In fact, gross inspection indicates the entire genitalia are distinct, including all aspects of the tegula and vinculum, gnathos, and aedeagus. Watson and Comstock (1920) noted the broad lobed base of the aedeagus as quite distinct from that of *P. enoptes*. The male genitalia of each subspecies considered here appear to be distinct, although they all clearly conform to the general *P. rita* characteristics. The genitalia are also subject to considerable variation, even on the basis of the small numbers

Table 1

Pattern of Variation and Variability in Samples Available
Including Type Series of P. rita elvirae and P. rita coloradensis.

MALES	Number Examined	Forewing Spread (mm)	Upperside Cyanic Overlay	Frequency With Aurora	Terminal Line Width (mm)	Secondary Submarginal Macules-Number
Rita	59	10.5-13.1	blue	.83	.6-.9	3-6
Pallescens	14(1)	(9.9)	Lt. grey blue	.07	(.3)	3-6
Coloradensis	31	9.9-12.5	Purplish Dk. blue	.97	1.0-1.6	(A)
Elvirae	36	9.4-11.5	Lt. grey blue	0	.4-.6	0-4

FEMALES	Number Examined	Forewing Spread	Upperside Frequency Basal Grey Sealing	Aurora
Rita	50	10.5-12.9	.66	Prominent .20 - .30 wing width at CU_2
Pallescens	10(1)	(9.6)	1.00	Diminished .05 wing width at CU_2
Coloradensis	26	9.8-12.6	0	Prominent .25 - .30 wing width at CU_2
Elvirae	46	8.7-10.6	0	Diminished .05 - .20 wing width at CU_2

Table 1. (Continued)

BOTH SEXES UNDERSIDE	M_1 Secondary Infuscation	Ground	Halos	Frequency Without Secondaries A2 Basal Macule	Primary Submarginal Macules	Shape Basal-Diam. Macules Primary	Frequency Without R2 Post-Median Macule Primary	Frequency Marginal Macules-Primary				
								0	3	4	5	6
Rita	None	Very Lt. grey white	Faint	.04	6	Sub-Circular	.06	0	0	.10	.72	.18
Pallescens	None	Off-white	None	No data but variable	5-6	Sub-Circular	No data but variable	0 or 4-minute				
Coloradensis	Present	Lt. grey	Distinct	.09	6	Sub-Circular	.32	0	0	.40	.39	.21
Elvirae	None	Off-white	None	.35	6	Strongly Sub-quadrate	.04	.15	.07	.55	.23	0

(A) Band usually not dissociated

( ) For P. rita pallescens gives data for available paratypes only. Other data from Tilden and Downey 1955.

of specimens examined. Tilden and Downey (1955) noted that the two examples from the type series illustrated by Barnes and McDunnough (1917) actually "appeared to be of two species." They refer to Figure 5 (Plate XVII) resembling *rita* and Figure 7 resembling *pallescens.*

In spite of variability, the features unique to *P. rita rita* include the conformation of the valves, which distally widen laterally gradually and form an obtuse angle, by the much reduced crista, and by the usual presence of a spiny protuberance on the distal dorso-medial portion (Tilden and Downey, 1955). The aedeagus is also distinct in that the lobes are nearly opposite, almost forming right angles to the shaft. In the small series prepared, the size of the proximal protuberance of the crista varied from barely to markedly distinct.

The female genitalia are also quite distinct from the *P. enoptes* group, particularly in the configuration of the vaginal lamellae which form the ostium bursae. The structure in *P. enoptes* is heavy complex subquadrate structure (Mattoni, 1954). Figures 2 to 5 show both lateral and ventral aspects of the vaginal lamellae for representatives of all sub-species of *P. rita.* Certain variations among the different subspecies are apparent from these photographs. However, from the limited number of preparations examined, the variation within a sample appears as great as differences between selected individuals of the different named forms. Variation encompasses the shape of the distal portion, varying from pointed to round, the shape and sclerotization of the ventral borders of the ostium, and the lateral shape, varying from a virtually straight to a slightly "s" form.

Distribution and Habitats:

Arizona: Types, 3 ♂ and 3 ♀ So. Arizona (Poling),
1 ♂ Santa Rita Mts., Pima Co., Arizona
1 ♂ Rio Verde Mts., Arizona

Other Records:
Ramsey Canyon, Huachuca Mts., Cochise Co., Arizona. IX/1/53 (et seq.) (Martin, Comstock, Ford, and Thorne)
Humboldt, Yavapai Co., Arizona VIII/19/53 (Tilden)

One of the cited type localities, Rio Verde Mountains, cannot be located on existing maps. It is believed that this is the old name for the Huachuca Mountains, hence permitting the Ramsey Canyon material to be regarded as topotypical. The distribution map of this and other subspecies is given as Figure 6.

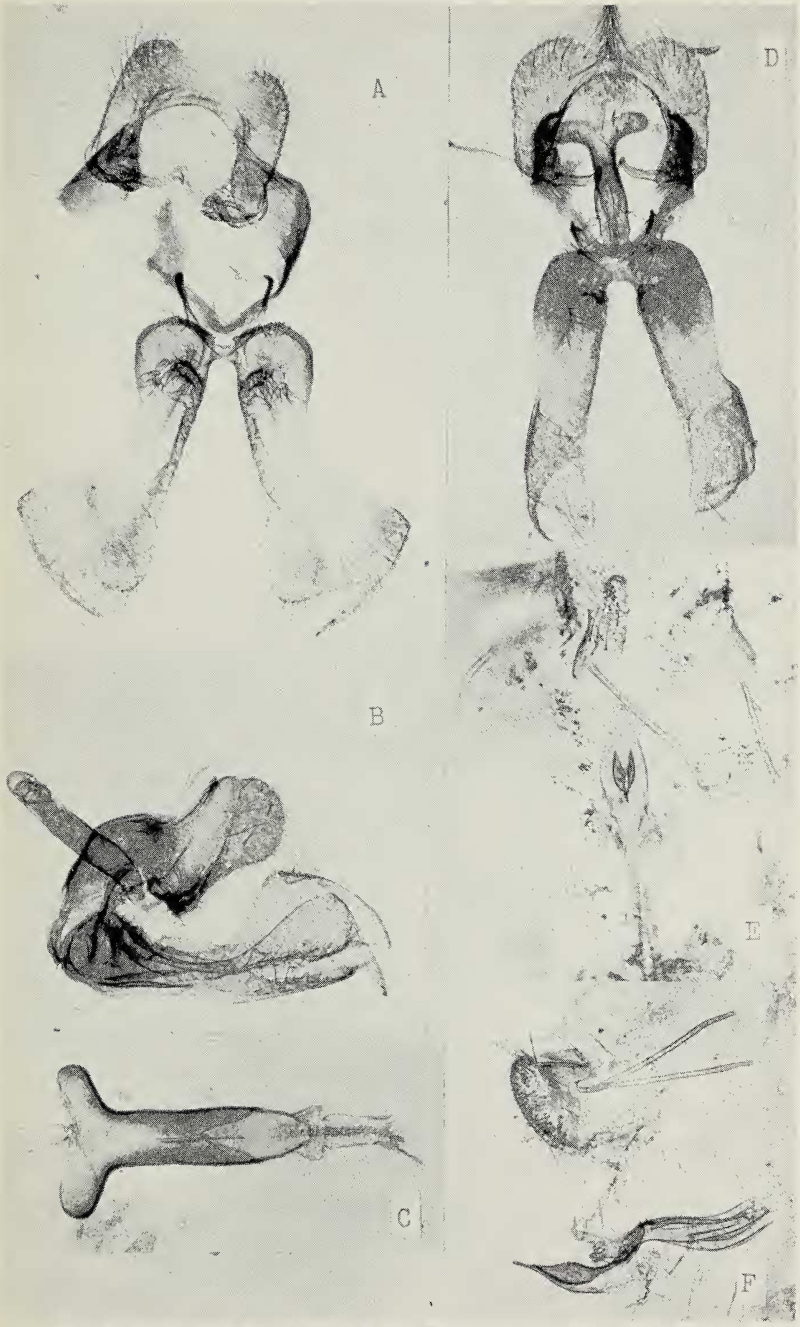

Fig. 2. Male and female genitalia. *Philotes rita rita.* A. Male Ventral, B. Male Lateral, C. Aedeagus, D. Male Ventral—note variation in valve armature, E. Female Ventral, F. Female Lateral. All from Ramsey Canyan, Huachuca Mts., Arizona.

Comstock (1953) described the habitat of *P. rita* in Ramsey Canyon as the foot of the canyon in open country suitable for grazing, although not overgrazed. The foodplant, a low perennial, was identified as close to *Erigonum wrightii.* Comstock describes a single egg which was taken by watching an ovipositing female. The egg was deposited among the flowers.

Philotes rita coloradensis,

new subspecies:

Holotype Male: Forewing 10.6 mm; width: 6.9 mm;
Hindwing 8.5 mm; width: 6.7 mm.

Upperside both wings with dark purplish blue cyanic overlay, slightly darker than typical *rita.* Terminal fuscous band 1 mm wide at M_2 on both wings. (On secondaries terminal band is discontinuous in A 1, CU_1 and CU_2). Slight pink aurora in A 1 and CU_2 more pronounced in A 1. Terminal fringe white, interrupted by infuscation at veins CU_1 and CU_2 on primaries, and continuous fuscous basal from A 1, both wings. Anterior infuscation complete in R and extending over distal half of R_2.

Underside ground light grey with slight melanic suffusion, macules strongly differentiated from ground by off-white halo. Faint blue cyanic overlay. Macule pattern shown in Figure 1. Aurora extending from M_1 to A 1, on secondary subquadrate in M_1 and A 1, cusped in other interneural spaces. Faint macule distal to each. Terminal lines less than .1 mm wide, with fuscous coastal scales extending ½ distance of fringe. (Infuscation of vein termini as shown in the figure.)

Allotype Female: Forewing: 11.5 mm; width: 7.6 mm;
Hindwing: 8.8 mm; width: 6.9 mm.

Upperside of both wings brown, slightly lighter in basal third. Faint blue grey scaling in basal 1.5 mm. of wings. Overlay of faint orange green. Secondaries with pronounced orange aurora extending from posterior 1/3 of M_2 through A 1. Faint light scaling between distal aurora and terminal line. Prominent round brown macules isolated between aurora and terminal line from M_2 to A 1. Terminal fringes white, interrupted by fuscous in A 1 and CU_2 on both primaries and secondaries.

Underside ground very light brown. Slight fuscous suffusion evident only in M_3, CU_1, and CU_2 of the forewing. Faint halo surrounding macules. Macule pattern shown in Figure 2. Aurora well developed, extending from RS to A 1. RS auroral element very small, subquadrate, remainder as in male. Terminal line less

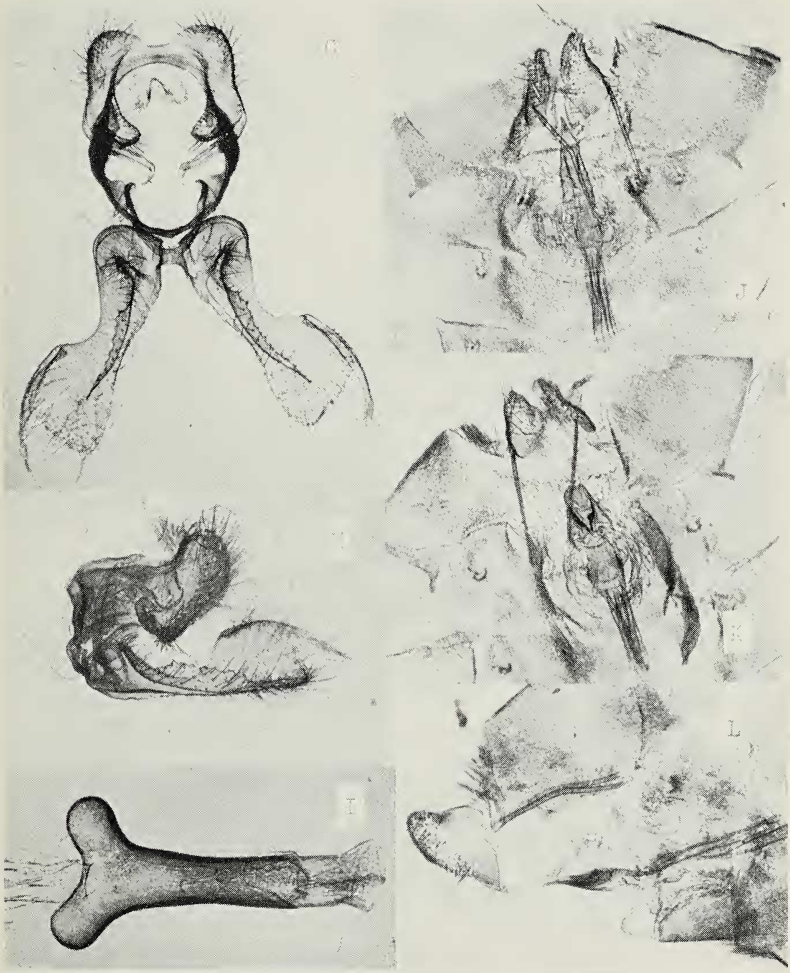

Fig. 3. Male and female genitalia. *P. rita coloradensis*—G. Male Ventral Paratype No. 7, H. Male Lateral Paratype No. 10, I. Male Aedeagus Paratype No. 7, J. Female Ventral Paratype No. 33, K. Female Ventral Paratype No. 31—note configuration of lamallae vaginalis, L. Female Lateral Paratype No. 32.

than .1 mm wide, costal scales ½ width at fringe. Infuscation of vein terminals as shown in the figure.

Types:

Holotype Male; allotype female and 30 male and 25 female paratypes miles south Kendrick, Lincoln County, Colorado, August 21, 1964. R.H.T. Mattoni. Holotype, allotype and 3 pairs of paratypes in copula. Illustrated in Figure 1. The subspecies is named after the state of its presently known distribution.

Characterization and Variation:

The pattern of variation of the type series is given in Table 1. In general the subspecies is rather similar to typical *P. rita. P. rita coloradensis* may be clearly distinguished by the male cyanic overlay, which is purplish blue, and wide terminal line. In both sexes the darker greyish underside ground and clear halos are discriminating. Otherwise the females are indistinguishable. A significantly different frequency distribution of number of marginal underside primary macules and absence of the R-2 postmedian marginal macule are noteworthy. Figure 7 shows the range of intensity of underside macules in a series of four males and females each of this subspecies (Upper 2 rows).

Genitalia:

The male genitalia are clearly similar to *rita.* The dorsal margin of the valves, however, recurve at a somewhat more acute angle. The cristae are quite pronounced, as are their proximal protuberances (based on only 4 preparations.) The dorso-median spiny protuberance is not present. The aedeagus is somewhat more definitely bifurcate than in *rita,* although less so than the following two subspecies. The tegumen and vinculum, particularly in lateral aspect, are not so massive as in typical *rita.* The female genitalia have been commented upon above. Genitalia of both sexes are illustrated in Figure 3.

Distribution and Habitat:

The clue which led to the collection of the type series was the cited publication, in Brown's *Butterflies of Colorado,* of a *Philotes* taken in late August on in the prairie. The date strongly suggested *P. rita,* the peculiar ecological site suggested an interesting population. Correspondence with Bernard Rotger provided the precise locality of specimens, cited in Browns book, from which the type series was taken. This locality is in the gently rolling prairie grassland which extends west towards the Rockies, and to the north, south, and east. Other localities cited included

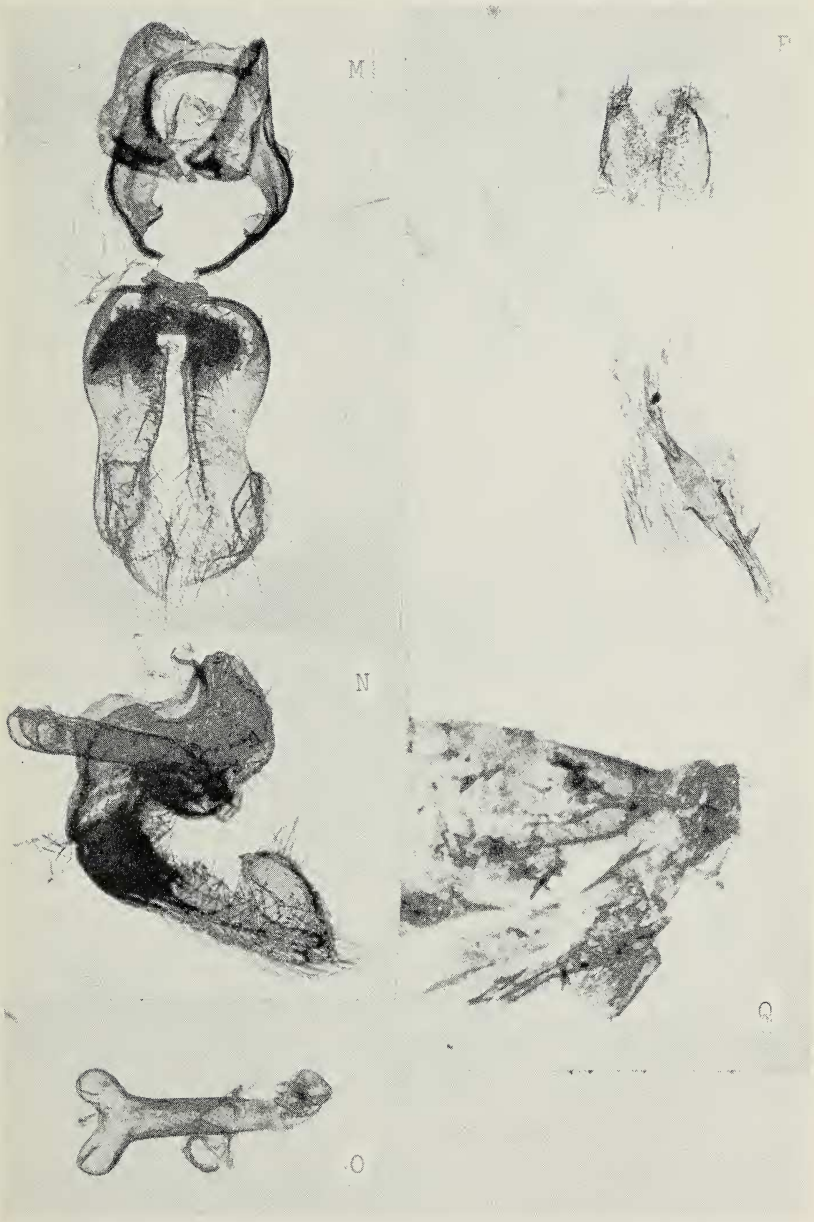

Fig. 4. Male and female genitalia, *P. rita pallescens*—M. Male Ventral, N. Male Lateral, O. Male Aedeagus, P. Female Ventral, Q. Female Lateral —Paratypes L.A. Museum.

Aroya, Cheyenne County; VIII, 24, 1934 (P. S. Remington); Bristol (Verhoeff), Hartman (Marston), and Holly (Lotrich) all in Prowers County. None of these specimens were examined, although they probably belong to this subspecies. After taking the type series, systematic collecting in cuts along highway 94 west of the type locality indicated *coloradensis* occurs at least to within 15 miles of Colorado Springs in El Paso County. The butterfly was most abundant around dense stands of the foodplant at the latter site, which was the edge of a steep rise, sloping down to the west. This was 6.7 miles east of the junction of highways 24 and 94. Assuming these samples to all represent *coloradensis,* the distribution is given in Figure 3.

The populations were apparently aggregated where the foodplant was dense. The best micro-habitats were road cuts and along the roads on the shoulders where fencing reduced grazing activity. The type series was taken in the middle of a pasture, however, where the foodplants were distributed both along the rises and in the swales in the gently rolling terrain. At the time of collecting, *Philotes* were virtually the only butterflies out.

There is no question but that the subspecies is more widely distributed than the data indicate, probably ranging east into Kansas, north into Nebraska, and south into New Mexico. It would not be surprising that in some of these areas distinct populations are yet to be found. This is a subject open to inquiry by collectors willing to explore at the proper time of the year. Such collecting would not be profitable for taking other than *P. rita,* however.

The foodplant, *Erigonum effusum,* was confirmed by observing oviposition in the field. Two eggs were in fact collected. In both cases the eggs were deposited deep inside individual flowers, where they were concealed at the base of the anthers. No other *Eriogonum* was observed in bloom at the locality. It would repay collectors of *Philotes* to observe females for ten minutes or so to confirm foodplant identity. In this way exact foodplant records would be available for future correlation. There appear to be important foodplant specificities which deserve further study (Langston, 1964; Mattoni unpublished). David Verity identified the foodplant from plant fragments preserved with the eggs.

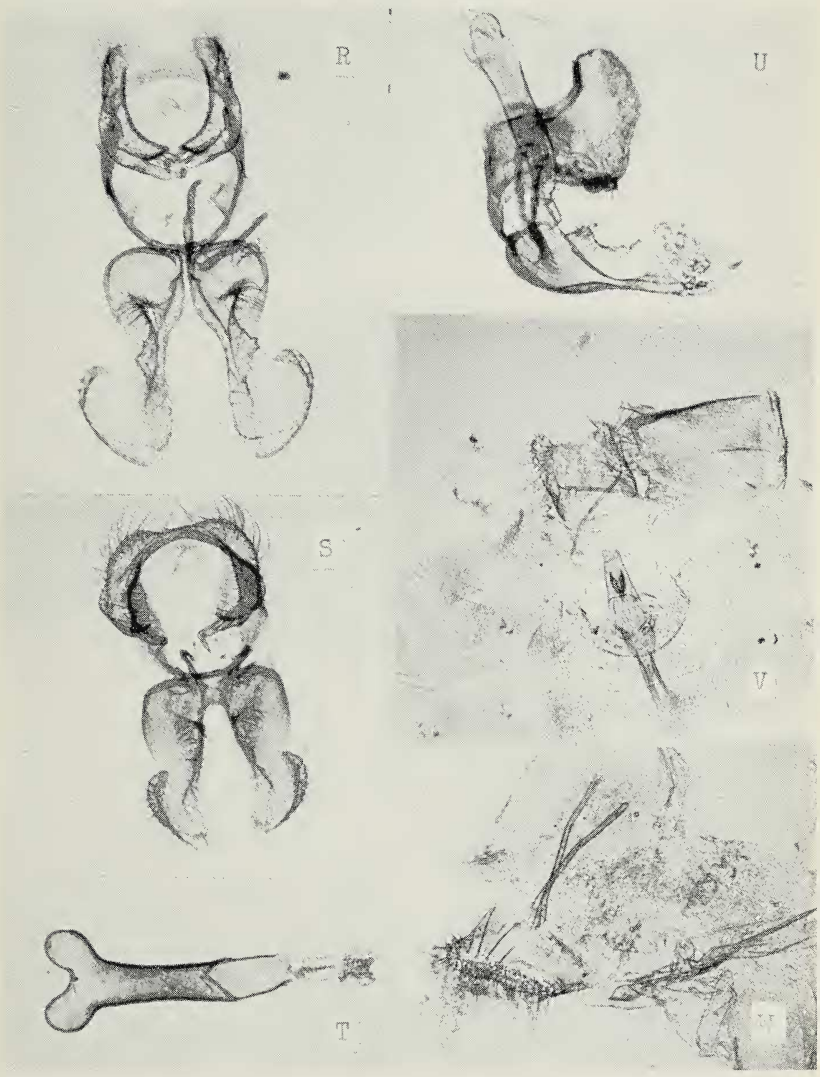

Fig. 5. Male and female genitalia, *P. rita elvirae*—R. Male Ventral—Paratype 15, S. Male Ventral—Paratype 17—note armature of valve, T. Male Aedeagus—Paratype 18, U. Male Lateral—Paratype 16, V. Female Ventral—Paratype 37,, W. Female Lateral—Paratype 33.

P. rita pallescens:

Tilden and Downey, 1955, *Bull. So. Calif. Acad. Sci.* 54:25-29.

Description and Variation:

Since only a pair of paratypes were available for this dus-cussion, (Figure 1) comments on variations must paraphrase the detailed comments of the original authors. They noted particular variation in the number of submarginal macules on the outer margin of the male upperside secondary, which range from 3 to 6, and in the amount of grey overlay in the basal female primary. Other maculation variation was noted. The pertinent data are summarized in Table 1.

Type specimens are figured in the original description, along with specimens of *P. rita rita* for comparative purposes.

Genitalia:

Figure 4 illustrates the male and female genitalia for the pair of paratypes available. Further drawings and detailed descriptions of the male are given in the original description. In general, the shape of the valves clearly distinguish *pallescens* from the previous two subspecies, but show similarity to *elvirae.* Further differences can be seen in the shape of the tegumen and vinculum, particularly in lateral aspect. The strongly bifurcate aedeagus is another differential feature. The female genitalia are figured and have been commented upon above.

Distribution asd Habitat:

The only specimens known at present are the type series cited by Tilden and Downey (1955). These were taken in mid-August in the Stansbury Mountains, Little Granite Mountain, Tooele County, Utah, around *Eriogonum sp.*

Philotes rita elvirae

New Subspecies:

Holotype male:: Forewing: 10.5 mm; width: 6.5 mm;
Hindwing: 8.0 mm; width: 6.2 mm.

Upperside both wings with blue cyanic overlay, lighter than typical *rita,* similar to *pallescens.* Light grey ground filling A 2 of secondaries. Marginal band relatively narrow, about .4 mm both primaries and secondaries at M_3 Trace of submarginal macules in A 1 and CU_2 of secondaries. Marginal fringe white, with infuscation at vein termini CU_2 and continuous fuscous fringe on inner margins basad from A 1, both wings.

Shape of secondary distinct, outer margin from anal angle to M_1 forming very shallow curve, compared with all other *Philotes* which are strongly curved.

Underside ground light cream grey, macules set in ground without halos. Primaries: Discoidal and post median macules strongly subquadrate and prominent, wholly filling the interneural spaces. Semi-macules subquadrate, increasing in width caudally, filling entire interspaces to give appearance of a continuous line with gap only at M_1. Submarginal macules faint. Secondaries: Macules subcircular, pronounced. Aurora extending as a solid band from A 1 to M_1. Cusps indistinct. Fringes as above. Terminal lines prominent, about .2 mm wide.

Abdomen—very light grey under and lateral with melanic scaling above.

Allotype female: forewing: 10.9 mm; width: 6.5 mm;
hindwing: 7.6 mm; width: 6.0 mm.

Upperside: Ground dark brown, lighter scaling in A 2 secondaries. Faint cyanic overlay in basal 1/10 of wings. Fringes white with infuscations at vein termini extending from A 1 to M_3, continuous, cusped. Cusps formed by row of submarginal mascules in same interneural space.

Underside: Ground cream white, maculation as male, except macules larger and aurora strongly cusped. Marginal fringes infuscated at vein ends A 1 to CU_1 both wings.

Abdomen: Cream white over all but extreme upper surface, latter dark brown.

Types: Holotype male and allotype female 3.5 miles southwest of Pearblossom, L.A. Co., California. Holotype, August 20, 1964, Allotype, August 24, 1963. 36 males and 46 female paratypes, same locality August to October, 1963 to 1965.

This subspecies is named in memorial to my late mother, Elvira "Toni" Mattoni, whose encouragement and help in developing my interest in biology were primarily responsible for efforts as encompassed in this work.

Characterization and Variation:

The pattern of variation of the type series is given in Table 1. In general this subspecies is superficially similar to *pallescens* and extremely unlike either *rita* or *coloradensis*. The most striking feature is the secondary wing shape showing maximum expanse at M_1 rather than M_2 and a rather straight outer margin. This is illustrated both in Figures 1 and 7. Other unique features include the wide underside marginal band and strongly subquadrate macules. The extreme variation in the intensity of underside maculation is shown for a selected group of four males and five

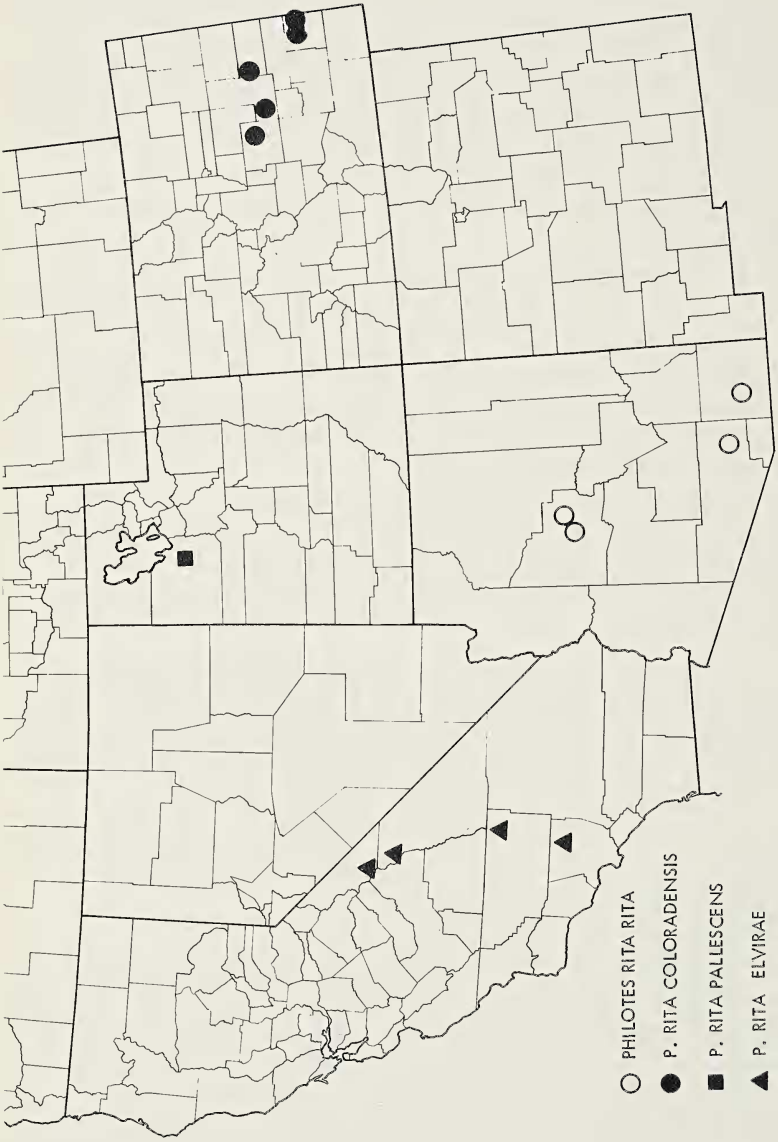

Fig. 6. Map showing the distribution of *Philotes rita* subspecies.

females in Figure 7. The last female is clearly aberrant on the primaries, an effect probably imparted by environmental shock during pigment deposition in the early pupal stage.

From Table 1, certain features of the pattern of variation stand out. These include the absence of males with an upperside secondary aurora, the frequency distribution of primary marginal macules, and the high frequency lacking the A 2 basal macule.

Genitalia:

The male genitalia, illustrated in Figure 5, shows a close similarity to *pallescens*. In five of the six preparations examined, the crista of the valve is pronounced with a well developed proximal protuberance. The latter, however, occurs about one third of the length from the basal or valve attachment. In the preparation of paratype no. 17, both crista and the protuberance are not clear. The aedeagus is deeply bifurcate. The tegumen and vinculum in lateral aspect appear somewhat more compressed than in the other subspecies. The female genitalia, illustrated in Figure 5 have been commented on above.

Distribution and Habitat:

The subspecies was first recognized as a *P. rita* variant in several isolated specimens taken at Mammoth Camp, July (F. W. Friday); Walker Pass Summit, Kern Co., September (C. I. Smith); and Little Rock, L.A. Co.; September (Unk.) The specimens were in my collection, which was destroyed by fire. They had all been genitalically determined, but the records were based on recollection. They did serve as the basis for the distribution statement I gave for *P. rita* in California (1954). I further recollect that the Friday specimen was in a series of *P. battoides glaucon* collected the same day. From other records of this species collected at Mammoth, *elvirae* might be expected to occur in the lower Ponderosa forest at about 6100 ft., probably near the old post office. There is, in addition, a single male taken "above Bishop," Inyo Co., (July 10, 1928, L. Martin), in the Los Angeles County Museum.

The type series was collected by Chris Henne in a desert wash about 3.5 miles southwest of Pearblossom, L.A. County, California. These were found flying from late August through mid-October, depending on seasonal conditions. Mr. Henne notes they are strong fliers, difficult to follow on warm days. Chris Henne has found the females ovipositing on the flowers of *Eriogonum plumatella*. He will shortly formally describe the life

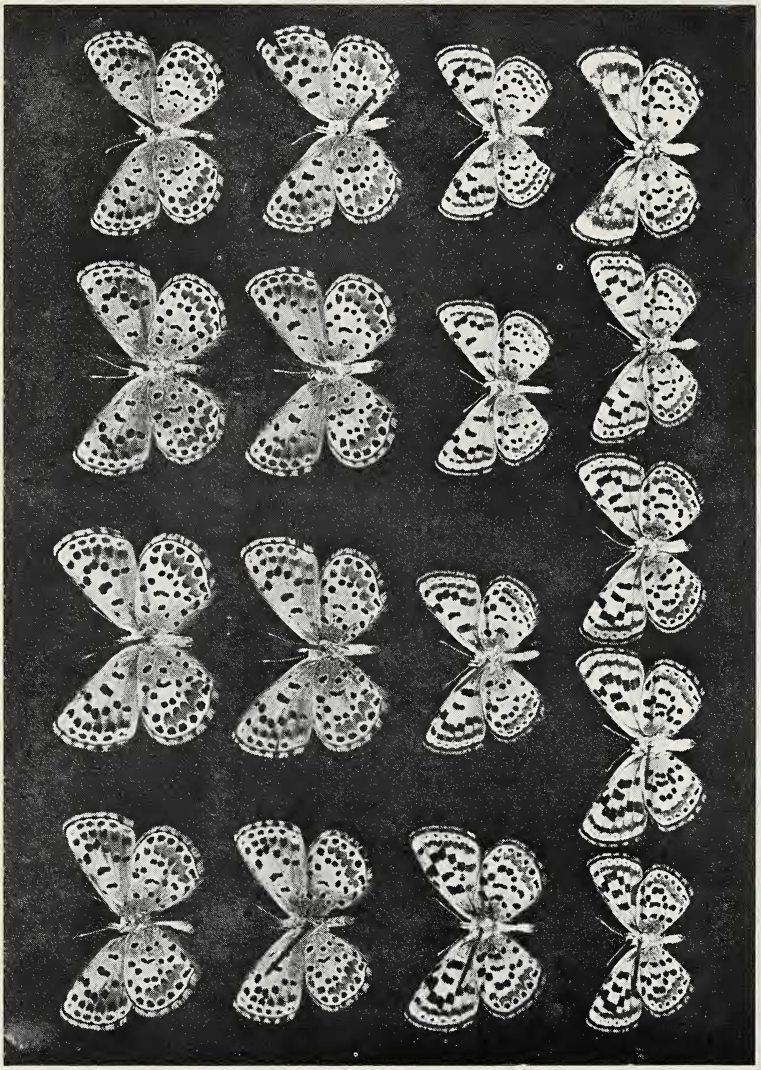

Fig. 7. Variations in underside maculation. First row: *P. rita coloradensis* males, Paratypes No. 4, 3, 2, 1. Second row: *P. rita coloradensis* female, Paratypes No. 34, 35, 36, 37. Third row: *P. rita elvirae* female, Paratypes No. 1, 2, 3, 4. Fourth row: *P. rita elvirae* females, Paratypes No. 22, 23, 24, 25, 27.

history in detail. *E. plumatella* is a fall blossoming low perennial member of the genus, closely allied to *E. wrightii* and *E. effusum.*

Type Distribution:

Holotypes, allotypes, and paratypes are deposited in the L.A. County Museum except for 1 pair of paratypes each to the California Academy of Sciences, and the U.S. National Museum. All genitalia preparations are in the L.A. county museum.

Discussion and Diagnosis:

The taxonomic conclusion of placing the four taxa described above as subspecies is based in my opinion that greater biological meaning arises from a classification based upon relationship rather than difference. Because of certain distinct features of these subspecies, particularly with reference to the male genitalic configuration, one could plausibly argue specificity. Such arguments would have dubious biological significance—as the real issue of this dissertation is a description of the patterns and modes of variation of a limited number of phenotypes sampled. I believe it is possible to recognize a collection of morphological and ecological relationships which do define an entity we may conveniently refer to as *Philotes rita.* The entity is morphologically defined by the configuration of both the male and the female genitalia; and ecologically defined both by the adult flight time in the late summer to early fall and association with a group of low woody perennial *Eriogonum.*

Within this entity or species, I have defined four modal groups, two previously described and two previously undescribed. According to characteristics evaluated above, these four entities or subspecies may be discriminated by a combination of characteristics abstracted from Table 1. One may immediately differentiate *rita* and *coloradensis* from *pallascens* and *elvirae* by the latter exhibiting a very light, off-white underside ground color without halos, their usually somewhat smaller size, the faint terminal line and the general absence of aurora in the male upperside, and by the greatly reduced aurora on the female upperside. *P. rita* and *coloradensis* are somewhat similar. In both sexes they may be distinguished by the underside characters only. The ground of *rita* is lighter, producing fainter halos to demark the macules. There is no evidence of infuscation in the anal area of the underside primaries in *rita;* whereas the infuscation is rather pronounced in all specimen of *coloradensis.* The females differ primarily in the high frequency of individuals possessing basal grey scaling in *rita* which is totally absent in the sample I have of *coloradensis.* The males may be furthermore discrim-

inated genitalically by a number of characters of the valves, aedeagus, tegumen and the vinculum. To differentiate *pallescens* from *elvirae* only an instant's inspection of the underside is necessary. The former possesses very small subcircular macules, the latter large strongly developed subquadrate macules. *P. elvirae* also possesses a peculiar wing-shape o fthe secondaries, unique among all of the *Philotes*. Both samples may be furthermore differentiated by the male genitalia which differ in the configuration of the valves, aedeagus, tegumen and vinculum. The female genitalia of all four subspecies appear to be sufficiently variable among samples that differentiation by this character is not practical.

Except in the case cited above for *P. rita elvirae* in the Sierra, there is no evidence of ecological sympatry among the forms of *rita* and those of any of the other members of the genus. There is, however, a considerable amount of geographical overlap.

The species is far more widespread than was previously noted. One of the most interesting features of *P. rita* is its distribution to the south and the east which place it clearly beyond the boundaries of any of the other *Philotes*. The southerly range may, however, be an artifact of poor collecting as certain members of the *P. battoides* group may be found well into Mexico. The easterly range is surely unique as intensive summer collecting should have revealed either *P. enoptes* or *battoides*. Further distributional data will be quite revealing and should be sought after by collectors in appropriate areas working at otherwise unrewarding fall collecting.

BIBLIOGRAPHY

BARNES, W. and J. McDUNNOUGH 1916a. Some New Races and Species of North American Lepidoptera. *Can. Ent.* 48:223

BARNES, W. and J. McDONOUGH 1916b. Notes on North American Diurnal Lepidoptera. *Contributions No. Amer. Lepid.* III 2:113

BARNES, W. and J. McDONOUGH 1917. *Contributions, No. Amer. Lepid.* III 4:215.

COMSTOCK, J. A. 1927. Butterflies of California, Author, Los Angeles

COMSTOCK, J. A. 1958. Life History on Four Southern Arizona Butterflies. *Bull. So. Calif. Acad. Sci.* 57:127-129

HOLLAND, W. J. 1931. The Butterfly Book, 2nd Edition, Doubleday, New York

LANGSTON, R. L. 1964. *Philotes* of Central Coastal California. Jr. Lep. Soc. 17:201-223

MATTONI, R. H. T. 1954. Notes on the Genus Philotes 1. Descriptions of Three New Subspecies and a Synoptic List. *Bull. So. Calif. Acad. Sci.* 53:157-165

NABOKOV, V. 1944. *Psyche* 51::104-138

TILDEN, J. W. and J. C. DOWNEY 1955. A New Species of *Philotes* from Utah. *Bull. So. Calif. Acad. Sci.* 54:25-29

WATSON, R E. and W. P. COMSTOCK 1920. *Bull. Amer. Mus. Nat. Hist.* XLII: 447-457.

THE LEPIDOPTERA RESEARCH FOUNDATION, INC.

THE LEPIDOPTERA RESEARCH FOUNDATION, INC. has been organized to supercede the LEPIDOPTERA FOUNDATION and is now incorporated in the State of California as a non-profit charitable and scientific organization. Contributions made toward its purposes in the State of California are deductible by the donors for income tax purposes.

THE JOURNAL OF RESEARCH ON THE LEPIDOPTERA is the primary article of publication for the Foundation; the editor will remain the same. A BOARD OF CONSULTING EDITORS for the Journal is under study and will be announced soon.

There has been created the ASSOCIATION of the LEPIDOPTERA RESEARCH FOUNDATION, INC. which shall be composed of those persons, firms, corporations or associations who wish to aid and promote, financially or otherwise, the aims and purposes of the FOUNDATION. This association supercedes the preexisting "Lepidoptera Foundation". Use of the former name will continue in an informal manner for purposes of use of existing stationery.

THE LEPIDOPTERA RESEARCH FOUNDATION, INC. is interested in sponsoring research and publications in the field of LEPIDOPTERA and will be glad to cooperate with interested parties to aid in these objectives. The Foundation will also be available to administer research funds for worthy projects for those persons or institutions who wish to aid in their support.

The address of the Foundation and the Journal is being changed to

1160 W. Orange Grove Ave.
Arcadia, California, 91006, U.S.A.